

REMARKS

Applicants acknowledge the Examiner's indication of allowable subject matter, claims 25 and 26, if rewritten in independent form, see Office Action page 5, paragraph 10. Reconsideration and allowance are respectfully requested.

The specification has been amended to delete links to Internet sites. The priority claim has been updated previously in Applicant's Preliminary Amendment, dated December 28, 2001.

Claims 34, 35 have been cancelled. Claim 36 has been added. Therefore Claims 22-33 and 36 are now pending.

Applicants submit that the newly added claim more clearly and distinctly recite that which Applicants consider to be their invention, and is adequately supported by the original disclosure. In view of the above-mentioned amendments, the rejection of the claims under 35 U.S.C. §112, 2nd paragraph, should be rendered moot.

Regarding the Sequence Listing, nucleotides 75 to 1576 of SEQ ID NO:3 encode the 500 amino acid sequence of SEQ ID NO:4.

Regarding the rejection under 35U.S.C. § 112, 1st paragraph (enablement), Applicants respectfully traverse.

Applicants bring to the Examiner's attention Ninnemann et al. (EMBO J. 13: 3464-3471, 1994, copy enclosed for examiner's convenience). Ninnemann et al. identified an Arabidopsis high affinity ammonium transporter by complementation of ammonium uptake mutations in yeast. The comparison of the protein identified by Ninnemann et al. and the sequence of the invention (SEQ ID NO: 4) is shown in Appendix A. The protein from *Arabidopsis thaliana* (gi: 1703292) and from soybean (SEQ ID NO:4) share a sequence identity of 78%.

In view of the discussion above, one skilled in the art would appreciate that the more highly conserved a residue is, the less likely that it could be modified and function maintained. From the alignment shown in Appendix A, one could quickly determine which amino acid residues might be modified in SEQ ID NO:4 without a likely change in function. Since SEQ ID NOs:4 and the Arabidopsis sequence share only 78% identity, one of skill in the art would have appreciated that many variants sharing at least 80% sequence identity to the SEQ ID NO:4 would have been expected to retain ammonium transport activity. Thus, Applicants respectfully request withdrawal of the 112, first paragraph rejection.

Regarding the Section 112, first paragraph (written description) rejection, Applicants respectfully traverse.

First, Applicants submit that the specification discloses to one of ordinary skill in the art a representative number of ammonium transporters with at least 80%

sequence identity to SEQ ID NO:4, and not just a single polynucleotide encoding SEQ ID NO: 4.

The specification at page 6, line 3 to 23, discloses alterations in nucleotide sequence that are not expected to alter functionality, such as alterations that produce a chemically equivalent amino acid at a given site or alterations in the N- or C-terminal portions. Thus, from the foregoing, the skilled artisan would immediately understand the specification to disclose a representative number of polynucleotide sequences, having different nucleotide substitutions, that encode ammonium transporters but that vary within 80% sequence identity from SEQ ID NO:4. Applicants respectfully request withdrawal of the 112, first paragraph rejection based upon the foregoing remarks.

Applicants believe that the foregoing is responsive to each of the points recited in the Office Action, and submit that the present application is in allowable form. Favorable consideration and passage to issue of all pending claims are solicited.

The Commissioner is authorized to charge Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company) for any requisite fees due or to credit any overpayment.

Applicants' undersigned representative may be reached at the below-listed numbers.

Respectfully submitted,



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